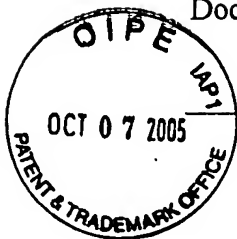


**COPY**

June 13, 2005

Page 1 of 2

Please Direct All Correspondence to Customer Number **20995****AMENDMENT / RESPONSE TRANSMITTAL**

Applicant : Kazemi, et al.  
 App. No : 10/057,842  
 Filed : January 24, 2002  
 For : LOAD BALANCING IN A DYNAMIC  
 SESSION REDIRECTOR  
 Examiner : Olga Hernandez  
 Art Unit : 2144

**CERTIFICATE OF MAILING**

I hereby certify that this correspondence and all marked attachments are being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on

6/13/05

(Date)

*John R. King*  
 John R. King, Reg. No. 34,362

**Mail Stop Amendment**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

Transmitted herewith for filing in the above-identified application are the following enclosures:

(X) Response to February 15, 2005 Office Action in 16 pages.

The fee has been calculated as shown below:

FEE CALCULATION				
FEE TYPE		FEE CODE	CALCULATION	TOTAL
Excess Claims > 20	15 - 20 = 0	1202 (\$50)	0 x 50 =	\$0
Independent > 3	7 - 7 = 0	1201 (\$200)	0 x 200 =	\$0
Multiple Claim	1.16(j)	1203 (\$360)		\$0
1 Month Extension	1.17(a)(1)	1251 (\$120)		\$120
2 Month Extension	1.17(a)(2)	1252 (\$450)		\$0
3 Month Extension	1.17(a)(3)	1253 (\$1,020)		\$0
			<b>TOTAL FEE DUE</b>	<b>\$120</b>

(X) An extension of time is hereby requested by payment of the appropriate fee indicated above.

(X) A check in the amount of \$120 is enclosed.

(X) Return prepaid postcard.

Docket No.: PROCOM.048C1

June 13, 2005

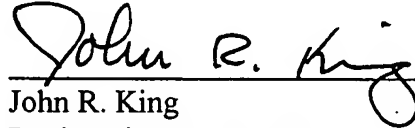
App. No.: 10/057,842

Page 2 of 2

**Please Direct All Correspondence to Customer Number 20995**

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- (X) Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.



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Registration No. 34,362

Attorney of Record

Customer No. 20,995

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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Kazemi, et al.  
Appl. No. : 10/057,842  
Filed : January 24, 2002  
For : LOAD BALANCING IN A  
DYNAMIC SESSION  
REDIRECTOR  
Examiner : Olga Hernandez  
Group Art Unit : 2144

CERTIFICATE OF MAILING

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6/13/05  
(Date)

John R. King  
John R. King, Reg. No. 34,362

RESPONSE TO FEBRUARY 15, 2005 OFFICE ACTION

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Office Action mailed February 15, 2005, Applicants respectfully submit the following amendments and comments.

**Amendments to the Claims** are reflected in the listing of claims which begins on page 2 of this paper.

**Summary of Examiner Interview** begins on page 10 of this paper.

**Remarks/Arguments** begin on page 11 of this paper.

## AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A data storage system that provides dynamic remapping of resources, the data storage system comprising:

a first network attached data storage device for storing one or more data storage resources;

at least one client device configured to request data from the first network attached data storage resource device;

a first server ~~capable of accessing~~ in communication with the first network attached data storage resource device;

a second server ~~capable of accessing~~ in communication with the first network attached data storage resource device, wherein the first and second servers communicate with the first network attached storage device via a local network; and

dynamic session redirector circuitry in communication with at least one client device via a stateful protocol and in communication with both the first server and the second server, wherein the dynamic session redirector circuitry is configured to access the first network attached data storage resource device in response to the request from the at least one client device, the dynamic session redirector circuitry is configured to access the first network attached data storage resource device through either the first server or the second server, the dynamic session redirector determining which server through which to access the resource first data storage device based upon the operational status of the first and second servers.

2. (Original) A data storage system as in Claim 1 wherein the operational status comprises a failure status of the first and second servers.

3. (Original) A data storage system as in Claim 1 wherein the operational status comprises a prediction of the expected load for the first and second servers.

4. (Original) A data storage system as in Claim 1 wherein the operational status comprises a processing load being handled by the first and second servers.

5. (Original) A data storage system as in Claim 1 wherein the operational status comprises a measure of the memory utilization of the first and second servers.

6. (Currently Amended) A data storage system as in Claim 1 wherein the dynamic session redirector circuitry maintains a table listing the association between the first network attached data storage resource device and the server through which the dynamic session redirector circuitry accesses the first network attached data storage resource device, and wherein the dynamic session redirector circuitry rewrites the table when the first network attached data storage device resource is accessed through a different server.

7. (Currently Amended) A data storage system that provides dynamic remapping of resources, the data storage system comprising:

a first server;

a second server;

a plurality of network attached data storage devices resources which are accessible through the first server and the second server wherein the first and second servers communicate with the network attached data storage devices via a local network; and

a dynamic session redirector in communication with at least one client device via a stateful protocol and in communication with both the first server and the second server, wherein the dynamic session redirector sends requests for access to at least one of the plurality of network attached data storage resources devices in response to a request for access to data storage resources made to the dynamic session redirector by the at least one client device, and wherein the dynamic session redirector further comprises a table mapping at least one of the plurality of network attached data storage devices resources with at least one of the first server and second server, and the dynamic session redirector sends the request for access to the network attached data storage devices resources to one of the first server and second server based upon the mapping between the network attached data storage device resource being accessed and the server listed in the table, and wherein the dynamic session redirector may remap any of the plurality of network attached data storage devices resources with one of either the first server or second server based upon the status of the first and second servers.

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8. (Currently Amended) A data storage system as in Claim 7 wherein the client is provided with a single system interface including the network attached data storage ~~resources~~ devices of the first and second server by the dynamic session redirector.

9. (Currently Amended) A data storage system for providing a single system interface for multiple network attached data storage resources-devices to clients connecting to the data storage system across a network via a stateful network protocol, the system comprising:

a dynamic session redirector;

a plurality of servers connected via a communications network to the dynamic session redirector;

a storage area network hub connected to the one or more servers;

one or more raid controllers connected to the storage area network hub, wherein the one or more servers communicate with the one or more raid controllers via the storage area network hub; and

a plurality of data storage devices ~~resources~~ connected to the one or more raid controllers,

the dynamic session redirector configured to provide a single system interface for accessing the plurality of data storage ~~resources-devices~~ to a client connected to the data storage system, the redirector configured to receive requests from a client using a stateful protocol and to provide a first communications session between the client and the redirector in response to a request from the client, the dynamic session redirector sending requests for access to at least one of the plurality of data storage ~~resources-devices~~ in response to the requests from the client, and wherein the dynamic session redirector further comprises a table mapping at least one of the plurality of data storage resources-devices with one of the plurality of servers, and the dynamic session redirector sends the request for access to the data storage resources-devices to one of the plurality of servers based upon the mapping between the data storage resource-devices being accessed and the server listed in the table, and wherein the dynamic session redirector may remap any of the plurality of data storage resources-devices to any of the plurality of servers based upon the status of the one or more servers.

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10. (Currently Amended) A data storage system as in Claim 9 wherein the redirector is further configured to send a request for access to the data storage ~~resources-devices~~ to a second of the plurality of servers based upon the mapping between the data storage ~~resource-devices~~ being accessed and the server listed in the table.

11. (Currently Amended) A data storage system that provides dynamic association of network attached data storage resources-devices which are made available to clients connecting to the data storage system across a network, the data storage system comprising:

a plurality of network attached data storage device means for storing of data;

a first server means for providing access to the plurality of network attached data storage device means;

a second server means for providing access to the plurality of storage device means, wherein the first and second server means communicate with the plurality of network attached data storage device means via a local network;

a redirector means for receiving requests from a client for access to one of the plurality of network attached data storage device means, and for providing an association between the plurality of network attached data storage device means and one of the first server means and second server means, the redirector means also accessing one of the plurality of network attached data storage device means through the server means associated with the network attached data storage device means, the redirector means changing the association between any of the plurality of network data storage device means and the first or second server means based upon the status of the first and second server means.



12. (Currently Amended) A method for accessing data on a plurality of network attached data storage resources-devices comprising:

receiving a request for access to one of the plurality of network attached data storage-resources devices;

looking up an association between the one of the network attached data storage resources-devices and one of a plurality of servers for accessing the plurality of storage-resources devices, wherein the plurality of servers communicate with the plurality of network attached data storage device via a local network;

accessing the one of the network attached data storage resources devices through the one of the plurality of servers;

determining the load on at least one of the plurality of servers ~~due to the plurality of storage resources~~; and

assigning new associations between the plurality of network attached data storage resources-devices and the plurality of servers based upon the load on at least one of the plurality of ~~storage-resources~~ servers.

13. (Currently Amended) A method as in Claim 12 wherein the step of accessing the one of the network attached data storage resources-devices further comprises sending a first request to the one of the plurality of servers, and sending a second request to a second of the plurality of servers.

14. (Currently Amended) A method for accessing data on a plurality of network attached data storage resources-devices comprising:

receiving a request for access to one of the plurality of network attached data storage resources-devices;

looking up an association between the one of the network attached data storage resources-devices and a plurality of servers for accessing the plurality of network attached data storage resources-devices wherein the plurality of servers communicate with the plurality of network attached data storage devices via a local network;

sending a first request to a first of the plurality of servers for accessing the one of the network attached data storage resources-devices;

sending a second request to a second of the plurality of servers for accessing the one of the network attached data storage resources-devices;

receiving a first response from the first server;

receiving a second response from the second server;

determining the load on at least one of the plurality of servers ~~due to the plurality of storage resources~~; and

assigning new associations between the plurality of network attached data storage resources-devices and the plurality of servers based upon the load on at least one of the servers ~~plurality of storage resources~~.

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15. (Currently Amended) A method for balancing the load among a plurality of servers being used to access a plurality of network attached data resources storage devices, the method comprising:

maintaining a table of associations between a plurality of network attached data storage devices resources and a plurality of servers where at least one of the plurality of network attached data resources storage devices is assigned to one of the plurality of servers and wherein the plurality of servers communicate with the plurality of network attached data storage devices via a local network;

evaluating the load imposed upon the plurality of servers by the network attached data resources storage devices associated with the plurality of servers;

determining whether the load imposed by the plurality of network attached data resources storage devices may be more evenly distributed among the plurality of servers by altering the associations between the plurality of network attached data resources storage devices and the plurality of servers; and

updating the table of associations between the plurality of network attached data resources storage devices and the plurality of servers to reflect the more even distribution of load.

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## SUMMARY OF EXAMINER INTERVIEW

### Identification of Claims Discussed

Claim 1 was discussed.

### Identification of Prior Art Discussed

U.S. Patent No. 6,173,322 to Hu (the "Hu patent").

U.S. Patent No. 6,138,162 to Pistriotto et al. (the "Pistriotto patent").

U.S. Patent No. 6,006,264 to Colby et al. (the "Colby patent").

U.S. Patent No. 6,070,191 to Haredran et al. (the "Haredran patent").

### General Background

The technology disclosed in the patent application relates to a system where a data storage device is accessible through at least two different servers - the first and second servers. Furthermore, a dynamic session redirector determines which of the first and second servers to use to access the data storage device based upon the operational status of the servers. For example, if the first server fails, the data storage device can still be accessed via the second server.

### Proposed Clarifications

Applicant proposed amending the claim to clarify that one or more network attached data storage devices are accessed by the different servers via a local network.

### Results of Interview

The Examiner agreed that the cited references failed to teach the features of a network attached data storage device that is accessible through first and second servers and wherein a dynamic session redirector determines which server through which to access a network attached data storage device based upon the operational status of the first and second servers.

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### REMARKS

The February 15, 2005 Office Action was based upon pending Claims 1-15. This Amendment amends Claims 1 and 6-15. Thus, after entry of this Amendment, Claims 1-15 are pending and presented for further consideration.

In the February 15, 2005 Office Action, the Examiner rejected Claims 1, 2, 11, 14 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,173,322 to Hu (the "Hu patent").

The Examiner rejected Claims 1 and 11 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,138,162 to Pistriotto et al. (the "Pistriotto patent").

The Examiner rejected Claims 1, 4, 11 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,006,264 to Colby et al. (the "Colby patent").

The Examiner rejected Claims 1, 3, 5-8, 11-13 and 15 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,070,191 to Naredran et al. (the "Naredran patent").

In addition, the Examiner rejected Claims 9 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Naredran patent. The specific rejections made by the Examiner, and Applicant's response to these rejections, are discussed below.

### Interview

Applicant would like to thank the Examiner Hernandez for the interview extended to Applicant's counsel of record, John R. King, on June 3, 2005. During the interview, the Examiner agreed that the proposed amendments to Claim 1 differentiated the claimed inventions from the cited references. With this in mind, Applicant has made similar amendments to the remaining claims. Reconsideration of the pending claims, as amended, is therefore respectfully requested.

### Rejection of Claims 1, 2, 11, 14 under 35 U.S.C. §102(e)

The Examiner rejected Claims 1, 2, 11, 14 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,173,322 to Hu (the "Hu patent").

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As discussed in the interview, the Hu patent does not teach the use of a network attached data storage device that is accessible through first and second servers via a local network. Furthermore, the Hu patent fails to teach the use of dynamic session redirector circuitry that determines which server through which to access a network attached data storage device based upon the operational status of the first and second servers.

In particular, the Hu patent fails to teach a network data storage device that is separately accessible through a first or a second server. Furthermore, the Hu patent fails to teach dynamically controlling which server accesses the network attached data storage device.

Claim 1

The Hu patent fails to teach a network data storage device that is accessible through a first or a second server with dynamic session redirector circuitry that controls which server accesses the network attached data storage device. Applicant therefore respectfully submits that Claim 1 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 1.

Claim 2

Claim 2 which depends from Claim 1, is believed to be patentable for the same reasons articulated above with respect to Claim 1, and because of the additional features recited therein.

Claim 11

The Hu patent fails to teach a plurality of network data storage devices that are accessible through first or second servers with dynamic session redirector circuitry that controls which server accesses which network attached data storage device. Applicant therefore respectfully submits that Claim 11 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 11.

Claim 14

The Hu patent fails to teach a method of accessing plurality of network data storage devices through first or a second servers and assigning new associations between the plurality of network attached data storage devices and the plurality of

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servers based upon the load on at least one of the servers. Applicant therefore respectfully submits that Claim 14 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 14.

**Rejection of Claims 1 and 11 under 35 U.S.C. §102(e)**

The Examiner rejected Claims 1 and 11 under 35 U.S.C. §102(e) as being anticipated by the Pistriotto patent.

**Claim 1**

The Pistriotto patent fails to teach a network data storage device that is accessible through a first or a second server with dynamic session redirector circuitry that controls which server accesses the network attached data storage device. Applicant therefore respectfully submits that Claim 1 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 1.

**Claim 11**

The Pistriotto patent fails to teach a plurality of network data storage devices that are accessible through first or a second servers with dynamic session redirector circuitry that controls which server accesses which network attached data storage device. Applicant therefore respectfully submits that Claim 11 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 11.

**Rejection of Claims 1, 4, 11 under 35 U.S.C. §102(e)**

The Examiner rejected Claims 1, 4, 11 under 35 U.S.C. §102(e) as being anticipated by the Colby patent.

**Claim 1**

The Colby patent fails to teach a network data storage device that is accessible through a first or a second server with dynamic session redirector circuitry that controls which server accesses the network attached data storage device. Applicant therefore respectfully submits that Claim 1 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 1.

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Claim 4

Claim 4 which depends from Claim 1, is believed to be patentable for the same reasons articulated above with respect to Claim 1, and because of the additional features recited therein.

Claim 11

The Colby patent fails to teach a plurality of network data storage devices that are accessible through first or a second servers with dynamic session redirector circuitry that controls which server accesses which network attached data storage device. Applicant therefore respectfully submits that Claim 11 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 11.

**Rejection of Claims 1, 3, 5-8, 11-13 and 15 under 35 U.S.C. §102(e)**

The Examiner rejected Claims 1, 3, 5-8, 11-13 and 15 under 35 U.S.C. §102(e) as being anticipated by the Naredran patent.

Claim 1

The Naredran patent fails to teach a network data storage device that is accessible through a first or a second server with dynamic session redirector circuitry that controls which server accesses the network attached data storage device. Applicant therefore respectfully submits that Claim 1 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 1.

Claims 3, 5 and 6

Claims 3, 5 and 6 which depend from Claim 1, are believed to be patentable for the same reasons articulated above with respect to Claim 1, and because of the additional features recited therein.

Claim 7

The Naredran patent fails to teach a plurality of network data storage devices that are accessible through a first or a second server with a dynamic session redirector that controls which server accesses the network attached data storage devices. Applicant therefore respectfully submits that Claim 7 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim .



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Claim 8

Claim 8 which depends from Claim 7, is believed to be patentable for the same reasons articulated above with respect to Claim 7, and because of the additional features recited therein.

Claim 11

The Naredran patent fails to teach a plurality of network data storage devices that are accessible through first or a second servers with dynamic session redirector circuitry that controls which server accesses which network attached data storage device. Applicant therefore respectfully submits that Claim 11 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 11.

Claim 12

The Naredran patent fails to teach a method of assigning new associations between the plurality of network attached data storage devices and a plurality of servers based upon the load on at least one of the plurality of servers. Applicant therefore respectfully submits that Claim 12 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 12.

Claim 13

Claim 13 which depends from Claim 12, is believed to be patentable for the same reasons articulated above with respect to Claim 12, and because of the additional features recited therein.

Claim 15

The Naredran patent fails to teach a method of determining whether the load imposed by the plurality of network attached data storage devices may be more evenly distributed among the plurality of servers by altering the associations between the plurality of network attached data storage devices and the plurality of servers. Applicant therefore respectfully submits that Claim 15 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 15.

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**Rejection of Claims 9 and 10 under 35 U.S.C. § 103(a)**

The Examiner rejected Claims 9 and 10 under 35 U.S.C. § 103(a) as being unpatentable over the Naredran patent.

**Claim 9**

The Naredran patent fails to teach a plurality of network data storage devices that are accessible through first or a second servers with a dynamic session redirector that controls which server accesses which network attached data storage device. Applicant therefore respectfully submits that Claim 11 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 11.

**Claim 10**

Claim 10 which depends from Claim 9, is believed to be patentable for the same reasons articulated above with respect to Claim 9, and because of the additional features recited therein.

**Conclusion**

Applicants have endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. In light of the above remarks, reconsideration and withdrawal of the outstanding rejections is specifically requested. Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 6/13/05

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